

**CAPITALIZATION RATE STUDY
FOR CENTRALLY ASSESSED PROPERTIES**

FOR: JANUARY 1, 2022



UTAH STATE TAX COMMISSION

**PROPERTY TAX DIVISION
UTILITIES & TRANSPORTATION SECTION
210 NORTH 1950 WEST, THIRD FLOOR
SALT LAKE CITY, UTAH 84134**

(801) 291-3600

www.propertytax.utah.gov



UTAH STATE TAX COMMISSION
PROPERTY TAX DIVISION
SUMMARY OF EQUITY RATES AND CAPITAL STRUCTURE

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Industry	Page	Equity Yield Rate	Debt Yield Rate	Debt/Equity	Industry WACC
PASSENGER AIR CARRIERS	6	13.13%	6.83%	60% / 40%	9.35%
REGIONAL AIR CARRIERS	10	14.17%	6.83%	55% / 45%	10.13%
FREIGHT AIR CARRIERS	14	9.06%	3.04%	20% / 80%	7.86%
ELECTRIC UTILITIES	18	8.11%	3.36%	40% / 60%	6.21%
NATURAL GAS UTILITIES	22	8.27%	3.36%	40% / 60%	6.31%
NATURAL GAS PIPELINES	26	10.74%	3.37%	45% / 55%	7.42%
LIQUID PIPELINES	30	11.46%	3.37%	45% / 55%	7.82%
RAILROAD	34	9.80%	3.37%	15% / 85%	8.84%
WIRELESS TELECOMS	38	8.68%	3.37%	50% / 50%	6.03%
WIRELINE TELECOMS	42	9.90%	7.98%	35% / 65%	9.23%
COMBINED TELECOMS	46	8.83%	3.37%	45% / 55%	6.37%



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DESCRIPTION OF EQUITY MODELS

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The Property Tax Division of the Utah State Tax Commission ("Division") estimates the market cost of equity for the industries it is required to assess for property tax purposes according to Utah Law. The Division estimates the market cost of equity using recognized equity models based on financial literature, research, and guidance from Utah Tax Commission Administrative Rule R884-24P-62 ("Rule 62"). The Division develops several market-based equity models including various Capital Asset Pricing Models ("CAPM") and Dividend Growth Models ("DGM"). The following is a summary of each of these models.

CAPM

The Division uses three CAPM cost of equity models: CAPM: Rule 62, CAPM: Supply Side, and CAPM: Implied Equity Risk Premium. Each of these CAPMs are based on the formula:

$$K(e) = R(f) + (\text{Beta} \times \text{Equity Risk Premium})$$

Where:

$K(e)$ = the estimated market cost of equity

$R(f)$ = the current risk free rate

Beta = a measure of the volatility of an individual stock compared to the volatility of the market as a whole.

Equity Risk Premium = the premium investors require above the return on a risk free investment. In other words, the additional return investors require for investing in risky securities vs. risk free securities. The Equity Risk Premium is also commonly referred to as the Market Risk Premium.

The difference between the three CAPMs that the Division calculates is how the Equity Risk Premium is estimated.

CAPM: RULE 62

Utah Tax Commission Administrative Code R884-24P-62 ("Rule 62") states that the CAPM is the "preferred method for estimating the cost of equity" (Utah Tax Code R884-24P-62 (5)(b)(i)(B)(II)(Aa)). Rule 62 also states that "more than one method may be used to correlate a cost of equity, but only if the CAPM method is weighted at least 50% in the correlation" (Utah Tax Code R884-24P-64

Rule 62 requires the Division to use or estimate the inputs for this CAPM as follows:

- The risk free rate shall be the current market rate on 20-year Treasury bonds.
- The beta should reflect an average or value-weighted average of comparable companies and should be drawn from Value Line or an equivalent source.
- The Risk Premium shall be the arithmetic average of the spread between the return on stocks and the income return on long-term bonds for the entire historical period contained in the Ibbotson Yearbook published immediately following the lien date.¹

¹ This information is now provided by Kroll



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CAPM: Supply Side

The CAPM: Supply Side uses the same inputs as the CAPM: Rule 62 except that the Supply Side uses an Equity Risk Premium that is based on the historical returns of companies in the form of earnings, dividends, and capital gains. Ibbotson states that “investors should not expect a much higher or lower return than that produced by the companies in the real economy.”² This earnings model separates the Equity Risk Premium into four sections: inflation, income growth, growth in real earnings, and growth of the Price Earnings Ratio (“P/E Ratio”). In other words, CAPM: Supply Side ignores the historical returns that have resulted in the change in the P/E ratio. The Division uses the Supply Side Equity Risk Premium published by Kroll.

CAPM: Implied Equity Risk Premium

Professor Damodaran from the Stern School of Business at New York University estimates the Equity Risk Premium by using current market data to extract the premium currently required by investors. Dr. Damodaran relies on the price of the S&P 500 index and the expected future cash flows of the index (including dividends and share repurchases) to estimate the current implied expected return on the market.³ This expected return is then compared to the current return on the risk free rate to derive an implied equity risk premium. The Division adjusts Dr. Damodaran’s model, which is compared to a 10-year Treasury bond, to compare it to the 20-year Treasury bond that the Division uses in its other CAPM models.

²Ibbotson SBBI 2015 Classic Yearbook pg. 155

³<http://pages.stern.nyu.edu/~adamodar/>



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DGM

The Division uses four multi-stage DGM cost of equity models: two models based on the methodology of Dr. Aswath Damodaran and two based on the methodology of Dr. Bradford Cornell. All of these models start with a short-term growth rate that is then adjusted, over a period of years, to a more sustainable long-term growth rate. The basic formula for a DGM is:

$$K(e) = (D1/P0) + g$$

Where:

$K(e)$ = the estimated cost of equity

$D1$ = next years expected dividend (including stock buybacks)

$P0$ = current stock price

g = the expected growth in dividends (including stock buybacks)

Damodaran DGM

This DGM model is based on the same mathematic structure that Dr. Damodaran uses to calculate the Implied Equity Risk Premium, but does so for each company with a positive payout ratio. The first stage of the model grows the earnings per share linearly for five years from Valueline's next year EPS estimate to the 3-5 year EPS estimate. The company's specific payout ratio is used to determine the total expected payout to shareholders. In year 5, a terminal value is calculated using a perpetual growth rate equal to the latest Congressional Budget Office's estimation of long-term economic growth. An internal rate of return calculation is then applied to the estimate of cash flows available to equity holders (including the terminal value) to determine the implied cost of equity.

Damodaran DGM (AP) Adjusted Payout

This DGM model is the same as the DGM Damodaran model but it adjusts the payout ratio to a sustainable level developed by Dr. Damodaran. This sustainable payout ratio is calculated as $1-(g/ROE)$ where g is the Congressional Budget Office's estimation of long term economic growth and the ROE is the industry average, weighted average, or median long term ROE from Valueline. The payout ratio is adjusted linearly over five years from the company specific payout ratio to the industry specific sustainable payout ratio.

Cornell 3-Stage DGM and Cornell (AP) Adjusted Payout

This 3-stage DGM follows the model put forth in "The Equity Risk Premium" by Bradford Cornell. This model uses the 5 year growth estimate provided by Value Line, then that growth rate converges linearly to the long-term growth rate over a 15 year period. In year 20, a terminal value is calculated iteratively using the $V = (CF_{n+1}) / (k-g)$ formula. An internal rate of return calculation is then applied to the estimate of cash flows available to equity holders (including the terminal value) to determine the implied cost of equity that will equal the current stock price. In the adjusted payout model the payout ratio is adjusted linearly over fifteen years from the company specific payout ratio to the industry specific sustainable payout ratio.



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KEY RATES AND FIGURES

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CORPORATE BONDS

Aaa	2.71%
Aa	2.82%
A	3.04%
Baa	3.37%
Ba1	6.07%
Ba2	6.83%
Ba3	7.98%
B1	8.33%
B2	8.62%
B3	9.05%
Caa1	9.78%
Caa2	10.53%
Caa3	11.18%
Ca	14.02%
C	14.02%

PUBLIC UTILITY BONDS

Aaa	N/A
Aa	3.01%
A	3.13%
Baa	3.36%

PREFERRED STOCKS

Aaa	N/A
Aa	N/A
A	N/A
Baa	N/A

MISCELLANEOUS RATES

Airline 'TEFRA' Relief Factor	7.18%
4-R Act Relief for Railroads	23.20%
4-R Act Relief (BNSF only)	7.17%
TIPS Inflationary Estimate	2.57%
Marginal Income Tax Rate	25.00%
GDP Price Deflator Forecast	N/A
Long Term Growth Rate	3.70%

INFLATION FACTORS

	4th Qtr.	Annual	
	GDP Implicit	Percent	Conversion
Year	Price Deflator	Change	Factor
2011	98.69	1.88%	1.229
2012	100.73	2.07%	1.204
2013	102.55	1.81%	1.183
2014	104.10	1.51%	1.165
2015	104.93	0.80%	1.156
2016	106.47	1.47%	1.139
2017	108.66	2.06%	1.116
2018	111.19	2.33%	1.091
2019	112.95	1.58%	1.074
2020	114.61	1.47%	1.058
2021	121.28	5.82%	1.000

2022 - 2012 Average Change: 2.09%

Source:

U.S. Department of Commerce: Bureau of Economic Analysis
Gross Domestic Product: Implicit Price Deflator

MARKET RISK PREMIUMS

Full Term Historical Risk Premium	7.46%
Supply Side Risk Premium	6.22%
Damodaran Implied ERP	5.00%
Risk Free Rate	1.94%

MISCELLANEOUS INFORMATION

Stock prices are from the last trading day of 2021. Retrieved from <http://finance.yahoo.com/>

Bond yield information derived from the January 2022 Mergent bond record.

Company and industry data was taken from the last Value Line tear sheet of 2021.

Damodaran Implied Risk Premium Model Calculated Based on Model Found at: <http://pages.stern.nyu.edu/~adamodar/>

Full term historical and supply side RP are taken from: Kroll.

**UTAH STATE TAX COMMISSION****PROPERTY TAX DIVISION****PASSENGER AIR CARRIERS -- EQUITY RATE SUMMARY**

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RECONCILIATION

Equity Models	Weight	Equity Rate
CAPM: RULE 62	100%	13.13%
CAPM: SUPPLY SIDE	0%	11.27%
CAPM: IMPLIED ERP	0%	9.44%
DGM: DAMODARAN	0%	nmf
DGM: DAMODARAN (AP)	0%	nmf
DGM: CORNELL	0%	nmf
DGM: CORNELL (AP)	0%	nmf
Reconciled Equity Rate		13.13%
Reconciled Debt Rate		6.83%
Debt/Equity Structure		60% / 40%
WACC Conclusion		9.35%



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PASSENGER AIR CARRIERS -- COMPANY INFORMATION

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CALCULATION OF CAPITAL STRUCTURE

Company	Market Value Of Equity*	Market Value Of Debt*	Percent Equity	Percent Debt
Alaska Air Group	6,559.70	4,184.00	61%	39%
Allegiant Travel Co.	3,387.55	1,690.40	67%	33%
American Airlines	11,633.19	47,421.00	20%	80%
Delta Airlines	25,009.93	36,495.00	41%	59%
JetBlue Airways	4,556.80	4,781.00	49%	51%
Southwest Airlines	25,366.43	13,780.00	65%	35%
Spirit Airlines	2,369.19	5,185.78	31%	69%
United Airlines	14,176.44	41,387.00	26%	74%
Selected Equity and Debt Structure			40%	60%

GUIDELINE COMPANY INFORMATION SUMMARY

Company	Return On Equity	Beta	Credit Rating	Debt Rate
Alaska Air Group	N/A	1.50	Ba2	6.83%
Allegiant Travel Co.	N/A	1.35	Ba3	7.98%
American Airlines	N/A	1.60	B2	8.62%
Delta Airlines	N/A	1.55	Baa3	3.37%
JetBlue Airways	N/A	1.70	Ba2	6.83%
Southwest Airlines	N/A	1.05	Baa1	3.37%
Spirit Airlines	N/A	1.85	B1	8.33%
United Airlines	N/A	1.60	Ba3	7.98%
Selected for Industry	nmf	1.50	Ba2	6.83%

* Amounts in Millions



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PASSENGER AIR CARRIERS -- EQUITY MODELS

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CAPM: RULE 62 COMPLIANT

Market Risk Premium	7.46%
X Industry Beta	1.50
Industry Risk Premium	11.19%
Add: Risk Free Rate	1.94%

Indicated Rate 13.13%

CAPM: IMPLIED ERP

Market Risk Premium	5.00%
X Industry Beta	1.50
Industry Risk Premium	7.50%
Add: Risk Free Rate	1.94%

Indicated Rate 9.44%

CAPM: SUPPLY SIDE

Market Risk Premium	6.22%
X Industry Beta	1.50
Industry Risk Premium	9.33%
Add: Risk Free Rate	1.94%

Indicated Rate 11.27%

MULTISTAGE DIVIDEND GROWTH MODEL

Indicated Rates

Company Name	Damodaran's	Damodaran's AP	Cornell's	Cornell's AP
Alaska Air Group	N/A	N/A	N/A	N/A
Allegiant Travel Co.	N/A	N/A	N/A	N/A
American Airlines	N/A	N/A	N/A	N/A
Delta Airlines	N/A	N/A	N/A	N/A
JetBlue Airways	N/A	N/A	N/A	N/A
Southwest Airlines	N/A	N/A	N/A	N/A
Spirit Airlines	N/A	N/A	N/A	N/A
United Airlines	N/A	N/A	N/A	N/A
Selected Rate	nmf	nmf	nmf	nmf



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PASSENGER AIR CARRIERS -- DGM INPUTS

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DIVIDEND GROWTH MODEL INPUTS

Company Name	Stock Price	Next Year's Payout	Next Year's EPS	3-5 Year EPS	Projected Growth
Alaska Air Group	52.10	nil	5.25	7.50	nmf
Allegiant Travel Co.	187.04	nil	13.00	20.00	26.00%
American Airlines	17.96	nil	0.65	4.15	nmf
Delta Airlines	39.08	nil	4.25	8.00	49.00%
JetBlue Airways	14.24	nil	1.00	2.50	nmf
Southwest Airlines	42.84	nil	2.75	4.90	34.00%
Spirit Airlines	21.85	nil	1.00	5.50	nmf
United Airlines	43.78	nil	-0.40	13.50	nmf

**UTAH STATE TAX COMMISSION****PROPERTY TAX DIVISION****REGIONAL AIR CARRIERS -- EQUITY RATE SUMMARY**

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RECONCILIATION

Equity Models	Weight	Equity Rate
CAPM: RULE 62	100%	14.17%
CAPM: SUPPLY SIDE	0%	12.14%
CAPM: IMPLIED ERP	0%	10.14%
DGM: DAMODARAN	0%	nmf
DGM: DAMODARAN (AP)	0%	nmf
DGM: CORNELL	0%	nmf
DGM: CORNELL (AP)	0%	nmf
Reconciled Equity Rate		14.17%
Reconciled Debt Rate		6.83%
Debt/Equity Structure		55% / 45%
WACC Conclusion		10.13%

**UTAH STATE TAX COMMISSION****PROPERTY TAX DIVISION****REGIONAL AIR CARRIERS -- COMPANY INFORMATION**

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CALCULATION OF CAPITAL STRUCTURE

Company	Market Value Of Equity*	Market Value Of Debt*	Percent Equity	Percent Debt
Mesa Air Group	201.37	713.93	22%	78%
SkyWest Inc	3,235.80	3,369.26	49%	51%
Selected Equity and Debt Structure			45%	55%

GUIDELINE COMPANY INFORMATION SUMMARY

Company	Return On Equity	Beta	Credit Rating	Debt Rate
Mesa Air Group	N/A	1.55	NR	#N/A
SkyWest Inc	N/A	1.65	NR	#N/A
Selected for Industry		1.64	Ba2	6.83%

* Amounts in Millions

nmf



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FREIGHT AIR CARRIERS -- EQUITY RATE SUMMARY

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RECONCILIATION

Equity Models	Weight	Equity Rate
CAPM: RULE 62	80%	8.45%
CAPM: SUPPLY SIDE	0%	7.37%
CAPM: IMPLIED ERP	0%	6.30%
DGM: DAMODARAN	0%	6.54%
DGM: DAMODARAN (AP)	0%	9.52%
DGM: CORNELL	0%	7.23%
DGM: CORNELL (AP)	20%	11.50%
Reconciled Equity Rate		9.06%
Reconciled Debt Rate		3.04%
Debt/Equity Structure		20% / 80%
WACC Conclusion		7.86%



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FREIGHT AIR CARRIERS -- COMPANY INFORMATION

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CALCULATION OF CAPITAL STRUCTURE

Company	Market Value Of Equity*	Market Value Of Debt*	Percent Equity	Percent Debt
Atlas Air Worldwide Holdings	2,749.78	2,847.51	49%	51%
FedEx Corp	68,531.67	24,396.00	74%	26%
United Parcel Service, Inc.	186,475.80	30,844.00	86%	14%
Selected Equity and Debt Structure			80%	20%

GUIDELINE COMPANY INFORMATION SUMMARY

Company	Return On Equity	Beta	Credit Rating	Debt Rate
Atlas Air Worldwide Holdings	14.00%	0.75	NR	#N/A
FedEx Corp	17.50%	1.05	Baa2	3.37%
United Parcel Service, Inc.	56.00%	0.80	A2	3.04%
Selected for Industry	43.93%	0.87	A3	3.04%

*Amount in Millions



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FREIGHT AIR CARRIERS -- EQUITY MODELS

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CAPM: RULE 62 COMPLIANT

Market Risk Premium	7.46%
X Industry Beta	0.87
Industry Risk Premium	6.51%
Add: Risk Free Rate	1.94%

Indicated Rate 8.45%

CAPM: IMPLIED ERP

Market Risk Premium	5.00%
X Industry Beta	0.87
Industry Risk Premium	4.36%
Add: Risk Free Rate	1.94%

Indicated Rate 6.30%

CAPM: SUPPLY SIDE

Market Risk Premium	6.22%
X Industry Beta	0.87
Industry Risk Premium	5.43%
Add: Risk Free Rate	1.94%

Indicated Rate 7.37%

MULTISTAGE DIVIDEND GROWTH MODEL

Indicated Rates

Company Name	Damodaran's	Damodaran's AP	Cornell's	Cornell's AP
Atlas Air Worldwide Holding	N/A	N/A	N/A	N/A
FedEx Corp	5.51%	10.95%	6.38%	12.08%
United Parcel Service, Inc.	6.98%	8.91%	7.60%	11.26%
Selected Rate	6.54%	9.52%	7.23%	11.50%



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Company Name	Stock Price	Next Year's Payout	Next Year's EPS	3-5 Year EPS	Projected Growth
Atlas Air Worldwide Holdings	94.12	N/A	13.50	16.50	11.00%
FedEx Corp	258.64	3.00	19.40	26.50	13.00%
United Parcel Service, Inc.	214.34	4.32	12.30	14.65	11.50%

**UTAH STATE TAX COMMISSION****PROPERTY TAX DIVISION****ELECTRIC UTILITIES -- EQUITY RATE SUMMARY**

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RECONCILIATION

Equity Models	Weight	Equity Rate
CAPM: RULE 62	80%	8.36%
CAPM: SUPPLY SIDE	0%	7.29%
CAPM: IMPLIED ERP	0%	6.24%
DGM: DAMODARAN	0%	6.96%
DGM: DAMODARAN (AP)	10%	6.96%
DGM: CORNELL	0%	7.34%
DGM: CORNELL (AP)	10%	7.29%
Reconciled Equity Rate		8.11%
Reconciled Debt Rate		3.36%
Debt/Equity Structure		40% / 60%
WACC Conclusion		6.21%



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ELECTRIC UTILITIES -- COMPANY INFORMATION

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CALCULATION OF CAPITAL STRUCTURE

Company	Market Value Of Equity*	Market Value Of Debt*	Percent Equity	Percent Debt
Alliant Energy	15,396.67	8,344.00	65%	35%
American Electric Power	44,859.74	38,155.10	54%	46%
Avista Corp.	3,037.93	2,626.76	54%	46%
IdaCorp	5,723.97	2,381.17	71%	29%
MGE Energy	2,974.41	738.04	80%	20%
NorthWestern	3,292.77	2,842.11	54%	46%
PNM Resources	3,914.93	3,998.22	49%	51%
Portland General	4,731.61	4,151.00	53%	47%
XCEL Energy	36,830.51	26,583.00	58%	42%
Selected Equity and Debt Structure			60%	40%

GUIDELINE COMPANY INFORMATION SUMMARY

Company	Return On Equity	Beta	Credit Rating	Debt Rate
Alliant Energy	11.50%	0.85	Baa2	3.36%
American Electric Power	10.50%	0.75	Baa2	3.36%
Avista Corp.	8.00%	0.95	Baa2	3.36%
IdaCorp	9.50%	0.85	Baa1	3.36%
MGE Energy	10.00%	0.75	A1	3.13%
NorthWestern	8.50%	0.95	Baa2	3.36%
PNM Resources	10.00%	0.95	Baa3	3.36%
Portland General	9.50%	0.90	A3	3.13%
XCEL Energy	11.00%	0.80	Baa1	3.36%
Selected for Industry	9.83%	0.86	Baa1	3.36%

*Amount in Millions



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ELECTRIC UTILITIES -- EQUITY MODELS

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CAPM: RULE 62 COMPLIANT

Market Risk Premium	7.46%
X Industry Beta	0.86
Industry Risk Premium	6.42%
Add: Risk Free Rate	1.94%
Indicated Rate	8.36%

CAPM: IMPLIED ERP

Market Risk Premium	5.00%
X Industry Beta	0.86
Industry Risk Premium	4.30%
Add: Risk Free Rate	1.94%
Indicated Rate	6.24%

CAPM: SUPPLY SIDE

Market Risk Premium	6.22%
X Industry Beta	0.86
Industry Risk Premium	5.35%
Add: Risk Free Rate	1.94%
Indicated Rate	7.29%

MULTISTAGE DIVIDEND GROWTH MODEL

Indicated Rates

Company Name	Damodaran's	Damodaran's AP	Cornell's	Cornell's AP
Alliant Energy	6.45%	6.54%	6.95%	6.93%
American Electric Power	7.42%	7.33%	8.18%	8.10%
Avista Corp.	7.69%	7.20%	7.61%	6.80%
IdaCorp	6.16%	6.43%	6.46%	6.50%
MGE Energy	5.62%	5.98%	5.98%	6.27%
NorthWestern	7.57%	7.51%	7.93%	7.59%
PNM Resources	8.00%	8.00%	7.61%	8.00%
Portland General	7.21%	7.03%	8.15%	8.26%
XCEL Energy	6.51%	6.67%	7.19%	7.12%
Selected Rate	6.96%	6.96%	7.34%	7.29%



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ELECTRIC UTILITIES -- DGM INPUTS

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DIVIDEND GROWTH MODEL INPUTS

Company Name	Stock Price	Next Year's Payout	Next Year's EPS	3-5 Year EPS	Projected Growth
Alliant Energy	61.47	1.71	2.75	3.25	5.50%
American Electric Power	88.97	3.17	4.95	6.00	6.50%
Avista Corp.	42.49	1.76	2.15	2.75	3.00%
IdaCorp	113.31	3.05	5.10	5.75	4.00%
MGE Energy	82.25	1.59	3.00	3.50	5.50%
NorthWestern	57.16	2.56	3.75	4.00	3.00%
PNM Resources	45.61	1.41	2.40	3.00	6.50%
Portland General	52.92	1.80	2.90	3.25	7.00%
XCEL Energy	67.70	1.94	3.10	3.75	6.00%



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NATURAL GAS UTILITIES -- EQUITY RATE SUMMARY

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RECONCILIATION

Equity Models	Weight	Equity Rate
CAPM: RULE 62	80%	8.28%
CAPM: SUPPLY SIDE	0%	7.23%
CAPM: IMPLIED ERP	0%	6.19%
DGM: DAMODARAN	0%	8.69%
DGM: DAMODARAN (AP)	10%	7.38%
DGM: CORNELL	0%	8.25%
DGM: CORNELL (AP)	10%	9.06%
Reconciled Equity Rate		8.27%
Reconciled Debt Rate		3.36%
Debt/Equity Structure		40% / 60%
WACC Conclusion		6.31%

**UTAH STATE TAX COMMISSION****PROPERTY TAX DIVISION****NATURAL GAS UTILITIES -- COMPANY INFORMATION**

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CALCULATION OF CAPITAL STRUCTURE

Company	Market Value Of Equity*	Market Value Of Debt*	Percent Equity	Percent Debt
Atmos Energy Corp.	14,188.49	8,653.67	62%	38%
Chesapeake Utilities	2,560.14	597.20	81%	19%
Nisource Inc.	11,190.42	10,415.70	52%	48%
Northwest Natural	1,518.47	1,174.50	56%	44%
Southwest Gas	4,232.57	4,619.00	48%	52%
Spire Inc.	3,371.87	3,594.40	48%	52%
Selected Equity and Debt Structure			60%	40%

GUIDELINE COMPANY INFORMATION SUMMARY

Company	Return On Equity	Beta	Credit Rating	Debt Rate
Atmos Energy Corp.	7.50%	0.80	A1	3.13%
Chesapeake Utilities	12.00%	0.80	N/A	#N/A
Nisource Inc.	11.00%	0.85	Baa2	3.36%
Northwest Natural	7.00%	0.85	Baa1	3.36%
Southwest Gas	9.00%	0.95	Baa1	3.36%
Spire Inc.	7.50%	0.85	Baa2	3.36%
Selected for Industry	9.00%	0.85	Baa1	3.36%

*Amount in Millions



UTAH STATE TAX COMMISSION

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NATURAL GAS UTILITIES -- EQUITY MODELS

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CAPM: RULE 62 COMPLIANT

Market Risk Premium	7.46%
X Industry Beta	0.85
Industry Risk Premium	6.34%
Add: Risk Free Rate	1.94%

Indicated Rate 8.28%

CAPM: IMPLIED ERP

Market Risk Premium	5.00%
X Industry Beta	0.85
Industry Risk Premium	4.25%
Add: Risk Free Rate	1.94%

Indicated Rate 6.19%

CAPM: SUPPLY SIDE

Market Risk Premium	6.22%
X Industry Beta	0.85
Industry Risk Premium	5.29%
Add: Risk Free Rate	1.94%

Indicated Rate 7.23%

MULTISTAGE DIVIDEND GROWTH MODEL

Indicated Rates

Company Name	Damodaran's	Damodaran's AP	Cornell's	Cornell's AP
Atmos Energy Corp.	6.13%	6.81%	7.15%	7.47%
Chesapeake Utilities	5.06%	5.81%	5.84%	6.52%
Nisource Inc.	13.99%	8.04%	8.59%	12.01%
Northwest Natural	10.27%	7.15%	8.28%	9.05%
Southwest Gas	8.19%	8.47%	9.26%	9.46%
Spire Inc.	8.52%	7.97%	10.39%	9.84%
Selected Rate	8.69%	7.38%	8.25%	9.06%



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DIVIDEND GROWTH MODEL INPUTS

Company Name	Stock Price	Next Year's Payout	Next Year's EPS	3-5 Year EPS	Projected Growth
Atmos Energy Corp.	104.77	2.72	5.45	6.50	7.00%
Chesapeake Utilities	145.81	2.00	4.95	6.15	8.50%
Nisource Inc.	27.61	0.92	1.50	2.15	8.50%
Northwest Natural	48.78	1.93	2.70	3.10	5.50%
Southwest Gas	70.05	2.48	4.50	6.75	9.50%
Spire Inc.	65.22	2.74	4.00	5.50	10.00%



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NATURAL GAS PIPELINES -- EQUITY RATE SUMMARY

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RECONCILIATION

Equity Models	Weight	Equity Rate
CAPM: RULE 62	80%	10.59%
CAPM: SUPPLY SIDE	0%	9.16%
CAPM: IMPLIED ERP	0%	7.74%
DGM: DAMODARAN	0%	13.86%
DGM: DAMODARAN (AP)	15%	9.90%
DGM: CORNELL	0%	14.01%
DGM: CORNELL (AP)	5%	15.61%
Reconciled Equity Rate		10.74%
Reconciled Debt Rate		3.37%
Debt/Equity Structure		45% / 55%
WACC Conclusion		7.42%



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NATURAL GAS PIPELINES -- COMPANY INFORMATION

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CALCULATION OF CAPITAL STRUCTURE

Company	Market Value Of Equity*	Market Value Of Debt*	Percent Equity	Percent Debt
Enbridge Inc.	79,176.08	70,594.21	53%	47%
Kinder Morgan, Inc.	35,960.83	37,775.00	49%	51%
Oneok, Inc.	26,215.08	15,643.45	63%	37%
TC Energy Corp.	45,655.74	43,340.90	51%	49%
Williams Companies, Inc.	32,550.00	27,768.00	54%	46%
Selected Equity and Debt Structure			55%	45%

GUIDELINE COMPANY INFORMATION SUMMARY

Company	Return On Equity	Beta	Credit Rating	Debt Rate
Enbridge Inc.	13.50%	0.90	Baa1	3.37%
Kinder Morgan, Inc.	9.50%	1.15	Baa2	3.37%
Oneok, Inc.	32.00%	1.50	Baa3	3.37%
TC Energy Corp.	14.00%	1.05	Baa2	3.37%
Williams Companies, Inc.	16.50%	1.20	Baa2	3.37%
Selected for Industry	17.10%	1.16	Baa2	3.37%

*Amounts in Millions



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NATURAL GAS PIPELINES -- EQUITY MODELS

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CAPM: RULE 62 COMPLIANT

Market Risk Premium	7.46%
X Industry Beta	1.16
Industry Risk Premium	8.65%
Add: Risk Free Rate	1.94%
Indicated Rate	10.59%

CAPM: IMPLIED ERP

Market Risk Premium	5.00%
X Industry Beta	1.16
Industry Risk Premium	5.80%
Add: Risk Free Rate	1.94%
Indicated Rate	7.74%

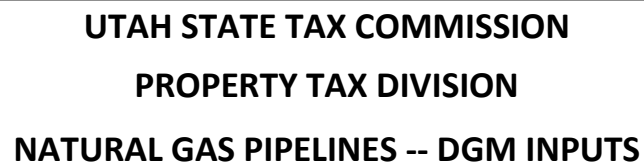
CAPM: SUPPLY SIDE

Market Risk Premium	6.22%
X Industry Beta	1.16
Industry Risk Premium	7.22%
Add: Risk Free Rate	1.94%
Indicated Rate	9.16%

MULTISTAGE DIVIDEND GROWTH MODEL

Indicated Rates

Company Name	Damodaran's	Damodaran's AP	Cornell's	Cornell's AP
Enbridge Inc.	12.10%	9.15%	12.11%	11.37%
Kinder Morgan, Inc.	18.37%	11.31%	19.92%	25.01%
Oneok, Inc.	14.53%	10.35%	14.75%	15.83%
TC Energy Corp.	9.40%	9.86%	9.63%	9.71%
Williams Companies, Inc.	14.90%	8.82%	13.65%	16.15%
Selected Rate	13.86%	9.90%	14.01%	15.61%



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Company Name	Stock Price	Next Year's Payout	Next Year's EPS	3-5 Year EPS	Projected Growth
Enbridge Inc.	39.08	2.73	2.37	3.00	6.50%
Kinder Morgan, Inc.	15.86	1.15	1.15	1.60	19.00%
Oneok, Inc.	58.76	3.90	3.80	5.50	12.00%
TC Energy Corp.	46.54	2.60	3.50	4.30	4.50%
Williams Companies, Inc.	26.04	1.68	1.45	1.75	10.50%



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LIQUID PIPELINES -- EQUITY RATE SUMMARY

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RECONCILIATION

Equity Models	Weight	Equity Rate
CAPM: RULE 62	80%	10.44%
CAPM: SUPPLY SIDE	0%	9.03%
CAPM: IMPLIED ERP	0%	7.64%
DGM: DAMODARAN	0%	17.47%
DGM: DAMODARAN (AP)	15%	14.24%
DGM: CORNELL	0%	14.28%
DGM: CORNELL (AP)	5%	19.32%
Reconciled Equity Rate		11.46%
Reconciled Debt Rate		3.37%
Debt/Equity Structure		45% / 55%
WACC Conclusion		7.82%



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LIQUID PIPELINES -- COMPANY INFORMATION

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CALCULATION OF CAPITAL STRUCTURE

Company	Market Value Of Equity*	Market Value Of Debt*	Percent Equity	Percent Debt
Energy Transfer LP	25,369.12	54,972.00	32%	68%
Enterprise Products Partners LP	47,793.69	33,480.00	59%	41%
Holly Energy Partners, LP	1,738.71	1,342.71	56%	44%
Magellan Midstream Partners, LP	9,863.86	5,711.50	63%	37%
MPLX LP	30,063.44	20,779.00	59%	41%
Phillips 66 Partners LP	8,236.23	3,810.00	68%	32%
Plains All American Pipeline LP	6,584.62	9,900.00	40%	60%
Shell Midstream Partners, LP	4,530.70	2,849.00	61%	39%
Selected Equity and Debt Structure			55%	45%

GUIDELINE COMPANY INFORMATION SUMMARY

Company	Return On Equity	Beta	Credit Rating	Debt Rate
Energy Transfer LP	10.50%	1.20	Baa3	3.37%
Enterprise Products Partners LP	7.50%	1.10	N/A	#N/A
Holly Energy Partners, LP	8.00%	0.90	Ba2	0.00%
Magellan Midstream Partners, LP	4.00%	1.20	Baa1	3.37%
MPLX LP	8.00%	1.05	Baa2	3.37%
Phillips 66 Partners LP	7.50%	1.05	Baa3	3.37%
Plains All American Pipeline LP	30.50%	1.55	Baa3	3.37%
Shell Midstream Partners, LP	5.50%	1.10	N/A	#N/A
Selected for Industry	44.00%	1.14	Baa3	3.37%

*Amount in Millions



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LIQUID PIPELINES -- EQUITY MODELS

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CAPM: RULE 62 COMPLIANT

Market Risk Premium	7.46%
X Industry Beta	1.14
Industry Risk Premium	8.50%
Add: Risk Free Rate	1.94%
Indicated Rate	10.44%

CAPM: IMPLIED ERP

Market Risk Premium	5.00%
X Industry Beta	1.14
Industry Risk Premium	5.70%
Add: Risk Free Rate	1.94%
Indicated Rate	7.64%

CAPM: SUPPLY SIDE

Market Risk Premium	6.22%
X Industry Beta	1.14
Industry Risk Premium	7.09%
Add: Risk Free Rate	1.94%
Indicated Rate	9.03%

MULTISTAGE DIVIDEND GROWTH MODEL

Indicated Rates

Company Name	Damodaran's	Damodaran's AP	Cornell's	Cornell's AP
Energy Transfer LP	22.13%	18.58%	12.48%	24.72%
Enterprise Products Partner	11.69%	11.43%	11.84%	12.71%
Holly Energy Partners, LP	15.24%	13.55%	13.28%	16.39%
Magellan Midstream Partne	10.79%	11.04%	10.60%	10.08%
MPLX LP	25.44%	12.93%	13.12%	25.65%
Phillips 66 Partners LP	12.85%	12.96%	13.48%	12.11%
Plains All American Pipeline	26.45%	19.34%	24.78%	37.70%
Shell Midstream Partners, L	15.17%	14.07%	14.70%	15.19%
Selected Rate	17.47%	14.24%	14.28%	19.32%



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DIVIDEND GROWTH MODEL INPUTS

Company Name	Stock Price	Next Year's Payout	Next Year's EPS	3-5 Year EPS	Projected Growth
Energy Transfer LP	8.23	0.46	1.50	2.00	10.50%
Enterprise Products Partners LP	21.96	1.38	2.20	2.90	7.50%
Holly Energy Partners, LP	16.49	1.20	2.10	2.70	8.00%
Magellan Midstream Partners, LP	46.44	3.14	4.30	5.90	4.00%
MPLX LP	29.59	2.12	2.90	3.55	8.00%
Phillips 66 Partners LP	36.07	2.78	3.45	6.00	7.50%
Plains All American Pipeline LP	9.34	0.54	1.20	2.50	30.50%
Shell Midstream Partners, LP	11.52	1.14	1.60	2.00	5.50%



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RAILROAD -- EQUITY RATE SUMMARY

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RECONCILIATION

Equity Models	Weight	Equity Rate
CAPM: RULE 62	80%	9.69%
CAPM: SUPPLY SIDE	0%	8.40%
CAPM: IMPLIED ERP	0%	7.13%
DGM: DAMODARAN	0%	7.91%
DGM: DAMODARAN (AP)	0%	8.32%
DGM: CORNELL	0%	9.62%
DGM: CORNELL (AP)	20%	10.25%
Reconciled Equity Rate		9.80%
Reconciled Debt Rate		3.37%
Debt/Equity Structure		15% / 85%
WACC Conclusion		8.84%



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RAILROAD -- COMPANY INFORMATION

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CALCULATION OF CAPITAL STRUCTURE

Company	Market Value Of Equity*	Market Value Of Debt*	Percent Equity	Percent Debt
Canadian National Railway	86,112.57	11,744.89	88%	12%
CSX Corp	82,787.19	19,981.00	81%	19%
Norfolk Southern	71,498.86	17,446.00	80%	20%
Union Pacific	160,943.38	34,688.00	82%	18%
Selected Equity and Debt Structure			85%	15%

GUIDELINE COMPANY INFORMATION SUMMARY

Company	Return On Equity	Beta	Credit Rating	Debt Rate
Canadian National Railway	31.50%	0.85	A2	3.04%
CSX Corp	39.00%	1.05	Baa1	3.37%
Norfolk Southern	24.50%	1.10	Baa1	3.37%
Union Pacific	57.50%	1.10	Baa1	3.37%
Selected for Industry	42.29%	1.04	Baa1	3.37%

*Amounts in Millions



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RAILROAD -- EQUITY MODELS

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CAPM: RULE 62 COMPLIANT

Market Risk Premium	7.46%
X Industry Beta	1.04
Industry Risk Premium	7.75%
Add: Risk Free Rate	1.94%

Indicated Rate 9.69%

CAPM: IMPLIED ERP

Market Risk Premium	5.00%
X Industry Beta	1.04
Industry Risk Premium	5.19%
Add: Risk Free Rate	1.94%

Indicated Rate 7.13%

CAPM: SUPPLY SIDE

Market Risk Premium	6.22%
X Industry Beta	1.04
Industry Risk Premium	6.46%
Add: Risk Free Rate	1.94%

Indicated Rate 8.40%

MULTISTAGE DIVIDEND GROWTH MODEL

Indicated Rates

Company Name	Damodaran's	Damodaran's AP	Cornell's	Cornell's AP
Canadian National Railway	6.60%	8.05%	7.40%	9.00%
CSX Corp	8.23%	8.79%	12.86%	10.81%
Norfolk Southern	8.22%	8.29%	9.30%	10.63%
Union Pacific	8.25%	8.21%	9.19%	10.41%
Selected Rate	7.91%	8.32%	9.62%	10.25%



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WIRELESS TELECOMS -- EQUITY RATE SUMMARY

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RECONCILIATION

Equity Models	Weight	Equity Rate
CAPM: RULE 62	80%	7.63%
CAPM: SUPPLY SIDE	0%	6.68%
CAPM: IMPLIED ERP	0%	5.75%
DGM: DAMODARAN	0%	13.90%
DGM: DAMODARAN (AP)	10%	12.76%
DGM: CORNELL	0%	9.58%
DGM: CORNELL (AP)	10%	13.02%
Reconciled Equity Rate		8.68%
Reconciled Debt Rate		3.37%
Debt/Equity Structure		50% / 50%
WACC Conclusion		6.03%



UTAH STATE TAX COMMISSION

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WIRELESS TELECOMS -- COMPANY INFORMATION

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CALCULATION OF CAPITAL STRUCTURE

Company	Market Value Of Equity*	Market Value Of Debt*	Percent Equity	Percent Debt
AT&T Inc.	175,670.17	229,818.00	43%	57%
T-Mobile US Inc.	144,883.80	113,001.00	56%	44%
U.S. Cellular	2,710.72	4,017.00	40%	60%
Verizon Communications	218,117.63	197,592.00	52%	48%
Selected Equity and Debt Structure			50%	50%

GUIDELINE COMPANY INFORMATION SUMMARY

Company	Return On Equity	Beta	Credit Rating	Debt Rate
AT&T Inc.	12.00%	0.85	Baa2	3.37%
T-Mobile US Inc.	7.00%	0.80	Ba1	6.07%
U.S. Cellular	3.50%	0.75	Ba2	6.83%
Verizon Communications	40.00%	0.65	Baa1	3.37%
Selected for Industry	15.63%	0.76	Baa3	3.37%

*Amount in Millions



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WIRELESS TELECOMS -- EQUITY MODELS

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CAPM: RULE 62 COMPLIANT

Market Risk Premium	7.46%
X Industry Beta	0.76
Industry Risk Premium	5.69%
Add: Risk Free Rate	1.94%
Indicated Rate	7.63%

CAPM: IMPLIED ERP

Market Risk Premium	5.00%
X Industry Beta	0.76
Industry Risk Premium	3.81%
Add: Risk Free Rate	1.94%
Indicated Rate	5.75%

CAPM: SUPPLY SIDE

Market Risk Premium	6.22%
X Industry Beta	0.76
Industry Risk Premium	4.74%
Add: Risk Free Rate	1.94%
Indicated Rate	6.68%

MULTISTAGE DIVIDEND GROWTH MODEL

Indicated Rates

Company Name	Damodaran's	Damodaran's AP	Cornell's	Cornell's AP
AT&T Inc.	18.85%	14.78%	10.97%	16.03%
T-Mobile US Inc.	N/A	N/A	N/A	N/A
U.S. Cellular	N/A	N/A	N/A	N/A
Verizon Communications	8.95%	10.74%	8.19%	10.00%
Selected Rate	13.90%	12.76%	9.58%	13.02%

Company Name	Stock Price	Next Year's Payout	Next Year's EPS	3-5 Year EPS	Projected Growth
AT&T Inc.	24.60	2.08	3.30	3.80	1.50%
T-Mobile US Inc.	115.98	N/A	3.80	6.05	8.50%
U.S. Cellular	31.52	N/A	1.90	2.10	1.50%
Verizon Communications	51.96	2.57	5.45	5.65	2.50%



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WIRELINE TELECOMS -- EQUITY RATE SUMMARY

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RECONCILIATION

Equity Models	Weight	Equity Rate
CAPM: RULE 62	100%	9.90%
CAPM: SUPPLY SIDE	0%	8.57%
CAPM: IMPLIED ERP	0%	7.27%
DGM: DAMODARAN	0%	5.31%
DGM: DAMODARAN (AP)	0%	7.77%
DGM: CORNELL	0%	7.35%
DGM: CORNELL (AP)	0%	6.82%
Reconciled Equity Rate		9.90%
Reconciled Debt Rate		7.98%
Debt/Equity Structure		35% / 65%
WACC Conclusion		9.23%



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WIRELINE TELECOMS -- COMPANY INFORMATION

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CALCULATION OF CAPITAL STRUCTURE

Company	Market Value Of Equity*	Market Value Of Debt*	Percent Equity	Percent Debt
Cable One	10662.46	3866.57	73%	27%
Lumen Technologies	12845.08	32501.00	28%	72%
Shenandoah	1274.11	56.71	96%	4%
WideOpenWest	1880.68	770.60	71%	29%
Selected Equity and Debt Structure			65%	35%

GUIDELINE COMPANY INFORMATION SUMMARY

Company	Return On Equity	Beta	Credit Rating	Debt Rate
Cable One	25.00%	0.90	Ba3	7.98%
Lumen Technologies	14.00%	0.95	Ba3	7.98%
Shenandoah	6.50%	N/A	N/A	#N/A
WideOpenWest	15.50%	1.35	B1	8.33%
Selected for Industry	15.25%	1.07	Ba3	7.98%

*Amount in Millions



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CAPM: RULE 62 COMPLIANT

Market Risk Premium	7.46%
X Industry Beta	1.07
Industry Risk Premium	7.96%
Add: Risk Free Rate	1.94%

Indicated Rate 9.90%

CAPM: IMPLIED ERP

Market Risk Premium	5.00%
X Industry Beta	1.07
Industry Risk Premium	5.33%
Add: Risk Free Rate	1.94%

Indicated Rate 7.27%

CAPM: SUPPLY SIDE

Market Risk Premium	6.22%
X Industry Beta	1.07
Industry Risk Premium	6.63%
Add: Risk Free Rate	1.94%

Indicated Rate 8.57%

MULTISTAGE DIVIDEND GROWTH MODEL

Indicated Rates

Company Name	Damodaran's	Damodaran's AP	Cornell's	Cornell's AP
Cable One	4.37%	6.04%	4.90%	6.99%
Lumen Technologies	N/A	11.08%	11.56%	8.39%
Shenandoah	6.24%	6.19%	5.58%	5.07%
WideOpenWest	N/A	N/A	N/A	N/A
Selected Rate	5.31%	7.77%	7.35%	6.82%

Company Name	Stock Price	Next Year's Payout	Next Year's EPS	3-5 Year EPS	Projected Growth
Cable One	1763.45	11.50	53.50	65.00	10.00%
Lumen Technologies	12.55	1.00	1.65	1.80	3.50%
Shenandoah	25.50	0.37	0.35	1.00	6.50%
WideOpenWest	21.52	N/A	0.15	0.70	NMF

**UTAH STATE TAX COMMISSION****PROPERTY TAX DIVISION****COMBINED TELECOMS -- EQUITY RATE SUMMARY**

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RECONCILIATION

Equity Models	Weight	Equity Rate
CAPM: RULE 62	80%	7.83%
CAPM: SUPPLY SIDE	0%	6.85%
CAPM: IMPLIED ERP	0%	5.89%
DGM: DAMODARAN	0%	11.01%
DGM: DAMODARAN (AP)	10%	11.91%
DGM: CORNELL	0%	10.31%
DGM: CORNELL (AP)	10%	13.71%
Reconciled Equity Rate		8.83%
Reconciled Debt Rate		3.37%
Debt/Equity Structure		45% / 55%
WACC Conclusion		6.37%



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COMBINED TELECOMS -- COMPANY INFORMATION

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CALCULATION OF CAPITAL STRUCTURE

Company	Market Value Of Equity*	Market Value Of Debt*	Percent Equity	Percent Debt
AT&T Inc.	175,670.17	229,818.00	43%	57%
Charter Communications	112,622.10	101,092.00	53%	47%
Comcast Corporation	228,157.48	116,539.00	66%	34%
Telephone & Data System	2,317.25	4,298.00	35%	65%
Verizon Communications	218,117.63	197,592.00	52%	48%
Selected Equity and Debt Structure			55%	45%

GUIDELINE COMPANY INFORMATION SUMMARY

Company	Return On Equity	Beta	Credit Rating	Debt Rate
AT&T Inc.	12.00%	0.85	Baa2	3.37%
Charter Communications	25.00%	0.90	Ba2	6.83%
Comcast Corporation	16.00%	0.80	A3	3.04%
Telephone & Data System	2.00%	0.95	Ba1	6.07%
Verizon Communications	40.00%	0.65	Baa1	3.37%
Selected for Industry	23.35%	0.79	Baa2	3.37%

*Amount in Millions



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PROPERTY TAX DIVISION
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CAPM: RULE 62 COMPLIANT

Market Risk Premium	7.46%
X Industry Beta	0.79
Industry Risk Premium	5.89%
Add: Risk Free Rate	1.94%

Indicated Rate 7.83%

CAPM: IMPLIED ERP

Market Risk Premium	5.00%
X Industry Beta	0.79
Industry Risk Premium	3.95%
Add: Risk Free Rate	1.94%

Indicated Rate 5.89%

CAPM: SUPPLY SIDE

Market Risk Premium	6.22%
X Industry Beta	0.79
Industry Risk Premium	4.91%
Add: Risk Free Rate	1.94%

Indicated Rate 6.85%

MULTISTAGE DIVIDEND GROWTH MODEL

Indicated Rates

Company Name	Damodaran's	Damodaran's AP	Cornell's	Cornell's AP
AT&T Inc.	18.85%	15.69%	10.97%	16.32%
Charter Communications	8.49%	8.51%	17.77%	20.28%
Comcast Corporation	5.89%	10.29%	7.52%	10.76%
Telephone & Data System	8.02%	8.96%	6.65%	7.41%
Verizon Communications	8.95%	11.38%	8.19%	10.34%
Selected Rate	11.01%	11.91%	10.31%	13.71%



UTAH STATE TAX COMMISSION
PROPERTY TAX DIVISION
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DIVIDEND GROWTH MODEL INPUTS

Company Name	Stock Price	Next Year's Payout	Next Year's EPS	3-5 Year EPS	Projected Growth
AT&T Inc.	24.60	2.08	3.30	3.80	1.50%
Charter Communications	651.97	19.56	31.00	43.95	29.50%
Comcast Corporation	50.33	1.08	3.70	5.00	10.50%
Telephone & Data System	20.15	0.72	1.15	1.50	1.50%
Verizon Communications	51.96	2.57	5.45	5.65	2.50%